WisDOT RD&T Home

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Putting Research to Work

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Technical information for state DOT highway professionals
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Designing for the Future

Steel Pilings Stabilize Mountainside Highway

Pennsylvania DOT has taken an innovative approach to widening a notoriously dangerous stretch of mountainside highway. The new four-lane Pennsylvania Route 22/322 will be literally pinned to the mountainside every 1 to 2 feet for three miles with 7-inch-diameter pipes. The pilings are drilled through a top layer of soil, then through a clay layer and embedded 6 feet into the bedrock. Read more in *McGraw-Hill Construction* at http://enr.construction.com/news/transportation/archives/050214a.asp.

Design Is Key to Ubiquitous Unpaved Roads

Unpaved or lightly surfaced roads account for two-thirds of the roads in the United States. Since water can be especially destructive to a gravel or dirt road, proper ditch configuration, shoulder construction, and erosion control measures are crucial to providing adequate drainage and minimizing environmental damage. The current issue of *Better Roads* provides a compendium of best practices for the design and maintenance of unpaved roads; see http://www.betterroads.com/articles/feb05d.htm.

WSDOT Saves Time, Money Through Streamlining

A recent state audit of Washington State DOT's efforts to streamline environmental permitting found the agency to be a national leader in its initiatives. WSDOT's strategies include programmatic permitting, a liaison program with other agencies, and online applications for multiagency aquatic permits. The audit also surveyed 24 other states, recommending improvements for WSDOT based on other states' programs. Read the report at http://www1.leg.wa.gov/LTC/TPAB/Audits/Environ_Permitting.htm.

Design Principles for Traffic Calming from Minnesota

A new Web site sponsored by the Minnesota Local Road Research Board, http://www.mn-traffic-calming.org/, provides information on traffic calming techniques and implementations. The site offers a searchable database of projects in Minnesota, and state research reports that provide a range of perspectives on traffic calming, including design principles and examinations of the psychological effects of various traffic calming measures on drivers. Read more in CTS Research E-News at http://www.cts.umn.edu/news/renews/2005/02/index.html#trafficcalming.

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Other e-newsletters for transportation professionals:
TRB E-Newsletter from the Transportation Research Board: http://gulliver.trb.org/news/.
The AASHTO Journal from the American Association of State Highway and Transportation Officials: http://www.transportation.org/publications/journal.nsf.
CTS Research E-News from the University of Minnesota: http://www.cts.umn.edu/publications/enews/.
Texas Transportation Researcher from TAMU's Texas Transportation Institute: http://tti.tamu.edu/researcher/.
Austroads Newsletter from Austroads: http://www.austroads.com.au/austroads_newsletter.html.
Transportation Communications Newsletter: http://groups.yahoo.com/group/transport-communications/.

Construction and Materials Innovations

Wisconsin Expertise Prized in HMA Testing

Public Roads recently reported the perspective of WisDOT's Judie Ryan on FHWA efforts to develop a new Simple Performance Tester that combines several Superpave measures. Read more at http://www.tfhrc.gov/pubrds/05jan/07.htm. WisDOT recently posted a similar study, in which UW-Madison's Hussain Bahia expanded the use of existing Superpave test equipment to predict rutting. See the final report at http://www.dot.wisconsin.gov/library/research/docs/finalreports/01-02gyratorycompactor.pdf.

FHWA Study of Asphalt Test Confirms UW-Madison Research

Posted in February, an internal FHWA study confirmed previous work by UW-Madison's Hussain Bahia on testing asphalt binders for particulate additives. The FHWA report evaluates and affirms a version of tests presented in a 2001 NCHRP report by Bahia, director of the Wisconsin Highway Research Program. Read the final report at http://www.tfhrc.gov/pavement/pubs/04110/index.htm.

Results of Minnesota Concrete Bridge Monitoring Are In

University of Minnesota's Center for Transportation Studies recently completed an eight-year study of a concrete integral abutment bridge equipped with over 150 monitoring instruments. The study produced findings on thermal effects, shrinkage, creep and more. Read more in CTS Research E-News at http://www.cts.umn.edu/news/renews/2005/02/index.html#bridges, and see the final report at http://www.lrrb.org/pdf/200443.pdf.

Precast Concrete Used Successfully in Pavements

Precast prestressed concrete, already used in bridge building, is finding uses in highway building as well. According to *Public Roads*, Texas DOT has seen good performance from over 340 panels installed on a highway in 2002. California, Missouri and Indiana will be trying similar panels as part of an FHWA program. Read more at http://www.tfhrc.gov/pubrds/05jan/05.htm.

More Uses for Recycled Materials

FHWA continues to work with the University of New Hampshire to develop new uses for recycled asphalt pavement, reclaimed concrete, and other materials. According to *Public Roads*, such research could, for example, expand bridge deck life to 75 or 100 years with the use of fly ash, furnace slag and more to resist water and salt intrusion. See http://www.tfhrc.gov/pubrds/05jan/02.htm.

Edge Cracks in Deep-Strength Asphalt Not Mixture-Related

A study of eight sections of deep-strength asphalt—thick asphalt laid directly on subgrade—in Colorado found edge cracking was likely connected to subgrade conditions. Expanding, plastic clay soils probably forced the cracks, which began at the surface of the pavement, according to the report; see http://www.co-asphalt.com/advantage/resources/documents/EdgeCracking-FinalReportv2.4.doc#_Toc93217998.

Bridge Builders Exchange Hard Hats for Thinking Caps

Concrete Monthly details innovations employed by builders of a 5,400-foot suspension bridge that will be completed in 2007 in Tacoma, Wash. Marvels include booms without counterweights, leak-proof piping carrying concrete from shore to a distant barge in the deep channel, and towing and securing 15,000-ton, seven-story hollow foundations in seven-knot currents, high winds and 15-foot tides. Read more at http://www.concretemonthly.com/monthly/art.php/1282.

Operating/Optimizing the System

Compilation of Work Zone Resources Available Online

To complement the Feb. 17 Talking Operations webcast, the National Transportation Operations Coalition has created a compilation of work zone resources, available at http://www.ntoctalks.com/icdn/wz_websites.php. The site offers links to FHWA's Work Zone Mobility and Safety Program, among others, as well as select reports and studies. Missed the Feb. 17 webcast? You can find archived webcasts on NTOC's site at http://www.ntoctalks.com/web_casts_archive.php.

Report Studies Uphill Battle of Growing Native Vegetation on Slopes

A new Minnesota DOT report looks at the effectiveness of enriching soils with organic matter and using erosion control materials in the often difficult effort to reestablish native materials on slopes. The study specifically looks at whether those techniques moderate the harsh microclimate or improve the fertility and moisture of the slope. Read more in CTS Research E-News at http://www.cts.umn.edu/news/renews/2005/02/index.html#vegetation, and see the final report at http://www.lrrb.org/pdf/200441.pdf.

Signal Timing, Operations Presentations Online

Presentations from the Best Practices for Signal Timing and Operations workshop are now available online. The workshop, part of the TRB 84th Annual Meeting, was held Jan. 9 in Washington, D.C. The site offers PowerPoint presentations on isolated timing settings; coordination timing setting; and recent advancements, research and funding. See http://signalsystems.tamu.edu/documents/BP%2005%20workshop%20files/Workshop%20on%20Signal%20Timing%20Final.htm.

Safe Travel/Smart Travel

NCDOT Launches Crash Data Analysis Tool

The University of North Carolina's Highway Safety Research Center has unveiled the NC Crash Data Query Web site, an online analysis tool of 2002 North Carolina DOT crash data. The site allows users to create tables reflecting crash, vehicle and person counts for crashes in North Carolina in 2002. The tables can cover the entire state or a specific city, county, Highway Patrol Area or NCDOT Division. Crash data can be analyzed using a variety of variables, including time of day, road surface condition and vehicle count. Visit the site at http://www.hsrc.unc.edu/crash/. Courtesy of the TRB E-Newsletter.

Global Study of Speed Camera Impacts

Speed cameras can cut road deaths by up to 71%, according to a report by UK academics on the impact of the devices around the world. The review drew together research from countries including Australia, Canada and New Zealand as well as British data, and is described as the world's first systematic review on the effectiveness of speed cameras. See the article in *The Scotsman* at http://news.scotsman.com/uk.cfm?id=157002005.

Signs Prove Cost-Effective for Safety

Mendocino County, Calif., has demonstrated just how effective signs are as a low-cost safety measure. In a landmark, low-tech program, the Mendocino County DOT reduced its crashes by 42.1% from 1992 to 1998 at a cost of $79,260 over the six-year period. The benefit-cost ratio works out to $299 in savings for every $1 spent, using Caltrans formulas. See the article in *Public Roads* at http://www.tfhrc.gov/pubrds/05jan/08.htm.

Cities Switch from Loop Detectors to Video

Several California cities are discovering that video technology can be a more practical and cost-effective tool for facilitating traffic flow than embedded loop detection, the older, more widespread technology. Read the article in the *Simi Valley Acorn* at http://www.simivalleyacorn.com/news/2005/0218/Front_Page/003.html.

FHWA, NHTSA Update Red-Light Camera Guidelines

FHWA and the National Highway Traffic Safety Administration teamed up recently to update 2003 guidelines for red-light camera systems. The guidelines walk transportation agencies through the process, from understanding the problem of red-light running to implementing and maintaining a red-light camera program. See http://safety.fhwa.dot.gov/intersections/rlc_guide/rlcguide05jan.pdf.

Victoria's Newest ITS Initiative

The Victorian government has allocated AU$100,000 (U.S. $78,700) in funding for a new forum for industry and government designed to put the state at the forefront of the ITS market. Read the article on ZDNet Australia at http://www.zdnet.com.au/news/business/0,39023166,39181534,00.htm.